Monitoring of Owls and Nightjars, MOON, in Illinois – 2009 Report

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Summary

Because anecdotally we know that some species of owls, and possibly all three species of nightjars in Illinois, are declining Monitoring of Owls and Nightjars, MOON, was initiated in 2008. Owls to be monitored during this study were restricted to nocturnal species, because of the time of the study. Therefore, Great Horned Owl, Barred Owl, Eastern Screech-Owl, and Barn Owl were the primary owl species we are monitoring, while Common Nighthawk, Whip-poor-will, and Chuck-will's-widow were the nightjars we are monitoring. Fortunately for us, monitoring programs targeting owls and/or nightjars had already begun in the Northeast (Northeast Coordinated Bird Monitoring Partnership), Wisconsin (Wisconsin Bird Conservation Initiative), Canada (Bird Studies Canada), and the Southeast (U.S. Nightjar Survey Network). This helped us to lay a groundwork protocol so that we would be able to collaborate in the future with these other organizations to try and denote population trends, habitat requirements, and food requirements, and later make sound management decisions to conserve individual species. The protocol has been modified somewhat since 2008, but the "standard" used by the previously mentioned monitoring programs is still being followed with a couple of additions (Appendix A).

This year we had a total of 29 routes monitored by 39 volunteers throughout the state. These numbers surpassed last years at 23 routes monitored by 27 volunteers. Our overall Owl and Nightjar detection totals increased from 298 in 2008 to 506 in 2009. Unlike in 2008, in 2009 we detected Chuck-will's-widows, and to our surprise had a new record of a Northern Saw-whet Owl detection in JoDaviess County in northwest Illinois in both April and May. Also, our implementation of an Eastern Screech-Owl playback at the end of the 6 minute passive listening period showed a significant increase when comparing detection probability of detection before and after the use of the playback. Likewise, the addition of the April sampling period showed that the probability of detecting a Great Horned Owl was highest in April when compared to May and June.

Background

Bird monitoring has played a crucial role in estimating population trends, distribution, and abundance for many species, which in turn has been integrated into management and conservation decisions regarding many high profile species. These changes in management, and efforts to conserve, have restored and stabilized many of the once extirpated or nearly extirpated species. However, while current monitoring programs, such as Breeding Bird Survey (BBS), Spring Bird Count (SBC), and Christmas Bird Count (CBC) have done an excellent job of estimating population trends for most species they do not have the capability to estimate population trends for nocturnal species. Because of this void, many organizations throughout Canada and the United States have begun, or are beginning to implement monitoring programs for various groups of nocturnal species. The initiation of efficient and statistically powerful monitoring programs for nocturnal species will allow us to detect small population changes over a shorter period of time.

Owl and Nightjar Status in Illinois

In Illinois we have four confirmed breeding species of owl; Barn Owl, Barred Owl, Great Horned Owl, and Short-eared Owl and three confirmed breeding species of nightjar; Chuck-will's-widow, Common Nighthawk, and Whip-poor-will. Within these two groups the Barn Owl and the Short-eared Owl are currently listed as endangered. The Eastern Screech-Owl is found in low numbers on BBS routes (BBS data), the Great Horned Owl is widespread and the Barred Owl, which historically was listed as rare, is now found throughout the state. As far as nightjars go, in 1934 Ford et al. were quoted as saying this of the Whip-poor-will in Birds of the Chicago Region – "A fairly common summer resident. Although not so numerous as formerly, they still occur throughout the area". Unfortunately, the same statement could not be said today. Common Nighthawks have a pretty even distribution throughout the state, and the Chuck-will's-widow is found in the lower southern portion of the state. Loss of habitat, cattle grazing, and available food are all factors that could be contributing to the decline of these species.

Because much of Illinois has become agriculturally dominated habitat selection is limited for owls and nightjars. Additionally, changes in agricultural practices have caused a decrease in available food sources for owls and nightjars. Needless to say it became apparent Illinois was in need of a monitoring program that would eventually allow us to learn more about these two groups of species and what courses of action we need to take to see that they are conserved. Henceforth, in the spring of 2008 Monitoring of Owls and Nightjars, MOON, in Illinois was initiated. MOON is a volunteer based program that occurs throughout the state of Illinois. Volunteers monitor routes located along suitable habitat for owls and nightjars. Routes are 9 miles long with 10 stops per route.

Methods

Protocol:

Based on previous research (Northeast Coordinated Bird Monitoring Partnership, Wisconsin Bird Conservation Initiative, Bird Studies Canada, and the U.S. Nightjar Survey Network) we know that there are certain criteria that are important when monitoring for owls and nightjars (Hunt 2007, Gallo 2007, Wilson and Watts 2006). Because of these criteria, we tried to closely follow the standard protocols of those currently undergoing Owl and Nightjar research (Appendix A):

1) Each survey should be conducted at least 30 minutes following sunset (when the moon is above the horizon) and end no later than 15 minutes prior to sunrise.
2) Surveys should only be completed during times when the moon is 50% or greater illumination. 2009 optimal monitoring dates are April 3-17, May 2-17, and May 31-June 15.

3) Surveys should only be performed when the moon is above the horizon and not obstructed by clouds. Nightjars have been shown to call less frequently when the moon is below the horizon or hidden by cloud cover.

Counting Owls and Nightjars:

This year we initiated the use of an Eastern Screech-Owl playback call at the end of our 6 1-minute listening blocks at each stop. Following the playback volunteers were asked to listen for an additional 2-1minute blocks. All species heard were recorded throughout the whole 8 minute listening period. Monitors were asked to listen, with the same consistency at each stop, for birds from a stationary position outside of their vehicle. Volunteers were encouraged to use their best judgment when determining if a bird was moving while listening at a stop.

Data was recorded at the time birds were detected, rather than waiting for the end of the six minute, or 8 minute if using playback, period, to avoid data omission errors.

* Other Species:

We encouraged volunteers to record any species they heard calling while monitoring. At some point in the future we hope that this data may become applicable to understanding more about species that call at night.

Data forms:

Data forms (see appendix) consisted of filling out the route name and number, observer name, date, start time, and end time, estimated temperature, as well as detection data at each stop. In conjunction with other surveys already in progress we also collected data on wind speed, sky condition, and noise at each stop (appendix)**.** When entering data Alpha codes were used for species names. An example of how data is entered can be seen in the appendix**.** In addition, route location data was also collected from volunteers, as well as habitat data at each stop.

Route Selection:

Each route consists of 10 stopping points where monitors stop, get out of their vehicle, and listen for nightjars and owls for a period of 6 minutes, 8 if using playback. Each stopping point should be at least one mile apart. The starting point of your route will be named stop #1 and so on until you get to stop #10. At this time you will have driven a nine mile route. Note: If needed, it is better to add space rather than shortening space between stops to avoid double counting. Also, given the topography of the state and the layout of many roads we realized that not all routes would be straight nine mile routes. Because of the topology of Illinois (agriculturally dominated) monitors were encouraged to scout and create their own routes along suitable owl and nightjar habitat. At times a route would be created for them and then they would scout it to make sure other problematic variables, such as noise and traffic, would not be limiting.

Results

This year we had a total of 29 routes monitored by 39 volunteers throughout the state. These numbers surpassed last years at 23 routes monitored by 27 volunteers. As expected, the increase in routes brought about an increase in data submission. The total number of targeted birds detected in 2008 was 298, while in 2009 the number of targeted birds detected was 506. Most of the 2008 routes were run again in 2009; however, there were a few that, because of lack of volunteers and staff, we were unable to monitor again in 2009. Table 1 includes owl, nightjar, and woodcock detections by route and date, while Table 2 depicts owl, nightjar, and woodcock detections by month. From Table 1 you can see that we detected Northern Saw-whet Owl along one of the routes, not only during one month, but during two. Table 3 depicts all “other species” that monitors detected by month. Table 4 is comparing species detections from 2008 and 2009. During the May sampling period for both 2008 and 2009 we had the highest number of detections. However, when taking out an

individual species such as the Great Horned Owl it can be noted that this species was detected the most in April. Figure 1 is a map depicting 2009 counties monitored and in addition includes location data for detected Whip-poor-wills. Figure 2 is depicting detection probability by species by month. Again, what jumps out of this figure is that Great Horned Owl has the highest probability of being detected in April. Figure 3 is depicting detection probability of an Eastern Screech-Owl with the use of playback and without the use of playback. There was a positive correlation with the use of playback and the response of Eastern Screech-Owls.

Discussion

Nightjar detections in 2009 surpassed 2008. It would appear we are starting to build a solid sampling foundation for Whip-poor-wills (n=135). It should also be noted that when comparing probability of detection by month in Whip-poor-wills June had a higher probability (~50%) than May (~40%). These data were similar to those in 2008. Contrastingly, Chuck-will's-widows (n=26) were only detected along 1 route and Common Nighthawks (n=19) along 2. One shortfall in our monitoring scheme right now is lack of randomized routes and volunteers. Because Illinois is predominately agriculture, route selection the past two years has been completed by choosing areas where suitable forested habitat exists and creating a route. We feel that we need to randomly select routes based on the forest cover layer of Illinois to make our dataset less biased. This method of randomization will also help to fill gaps in along the Chuck-will's-widow range. The Common Nighthawk is a bit more difficult to monitor. Historically, this species has been commonly detected in towns and cities, because they will choose to nest on gravel rooftops and the lights around cities can increase insect concentration, their main food supply (Armstrong 1965). Our monitoring plan does not include developed areas in the protocol. It may be that these species may have to be monitored separately from other nightjars.

There were two major changes we made in 2009 to try and increase owl detections. The first was the addition on an April sampling period, since owls breed earlier than nightjars we wanted to make sure we were adequately sampling at times when both groups of species would be calling. As expected, Great Horned Owl probability of detection more than doubled in April when compared to May and June detection probabilities (Figure 2). Based on previous data collected our data supports what others have already found to be true, that Great Horned Owls call more frequently in April than they would in May and June. The second major change we implemented was adding an Eastern Screech-Owl playback at the end of the 6 minute passive listening period. What we found was that adding a playback more than doubled the probability of detecting an Eastern Screech-Owl (Figure 3). Therefore, we feel that this is an adequate tool to use to monitor for the Eastern Screech-Owl. Barred Owls called pretty consistently throughout the three monitoring periods and were the most commonly detected species throughout the state. Unpublished data from the Graber 100 year bird study in Illinois shows that this species has changed in status in the past 100 years from rare to common. It is too early in our monitoring to know if this species is displacing other owl species, but, anecdotally, we feel they could be one factor leading to the decline of other cavity nesting species, such as the Eastern Screech-Owl. Perhaps the species of greatest concern, given its current status of endangered, is the Barn Owl, which we have not detected at all during the past two years. This is most likely due to the fact that areas where these species are most commonly found, based on Breeding Bird Atlas data, do not have routes (Kleen, Cordle, Montgomery 2004). Because of this gap, we used past detection data to analyze where in Illinois we should place routes, so that we do not leave this species out.

While we have yet to delve into some of our various variables (habitat, wind, sky, noise, etc.) that we have collected throughout the past two years we have managed to make, what we feel are, some significant changes to ramp up the statistical power that this data set will begin to have. However, that being said, there are a couple of additional additions we plan to make for the 2010 monitoring season.

1. Add random routes selected from the forest layer of Illinois.
2. Create routes in areas we know Barn Owls have been detected and try using a Barn Owl playback these routes.

Acknowledgements

We would like to thank all of the volunteers that used their personal time to help continue to make MOON a success. Additionally, we would like to thank Northeast Coordinated Bird Monitoring Partnership, Wisconsin Bird Conservation Initiative, Bird Studies Canada, and the U.S. Nightjar Survey Network for starting up such fantastic monitoring programs to serve as excellent references when putting together our own here in Illinois. Finally, to the staff of the IDNR, TNC, and INHS thank-you for all of your input and in some cases your monitoring.

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Table 1: Number of species detected by route and date in 2009.

Route	Date	Species								Totals
		AMWO	BDOW	CONI	CWWI	EASO	GHOW	NSWO	WPWI	
Cal7447	4/03/09	4	5							9
Cal7447	5/12/09		5						6	18
Cal7447	6/13/09		3						5	1
Cass1235	6/14/09					2	1		16	19
Champ4158	5/15/09		4	3			3			10
Champ4158	6/13/09									0
Coles6476	4/11/09						1			1
Coles6476	5/11/09		4			1	1		3	9
Cook1622	5/14/09	1				3				4
Cook4308	6/26/09			2			1			3
Cumb6476	4/07/09	1	4			1	5			11
Cumb6476	5/17/09		2							2
Cumb6476	6/03/09									0
Edwa0476	4/17/09		1				2			3
Edwa0476	5/15/09		3				1			4
Grundy0674	4/11/09									0
Hanc6397	4/08/09						3			3
Hanc6397	5/11/09		3			5	3			11
Hanc6397	6/04/09		1			2	1			4
Iroq7824	4/11/09	10	2				5			17
Iroq7824	5/05/09	12	2			1			14	29
Iroq7824	6/09/09					3				3
Jasp2685	5/15/09		5						7	10
Jasp2685	6/05/09		1						9	12
JoDa3053	4/15/09		6	2		4	1	1		14
JoDa3053	5/17/09		5				1	1	11	18
JoDa3053	6/09/09		12	7			2		28	49
JoDa3053	7/08/09		6	4		2	1		17	30
John0628	5/07/09		3		13	1			4	21
John0628	6/02/09		4		13	2			1	20
Kane7345	6/14/09									0
LaSal6056	4/15/09					1				1
LaSal6056	5/11/09					1			4	5
LaSal6056	6/08/09								4	4
Lawr2880	4/07/09		4				1			5
Lawr2880	5/09/09		2							2
Lawr2880	6/05/09		1							1
Livin2856	4/17/09						1			1
Livin2856	5/17/09									0
Livin2856	6/14/09									0
McHen0165	4/09/09						1			1
McHen0165	5/14/09			1			1			2
McLean7432	4/07/09		4			2	2			8
McLean7432	5/05/09		4			2				6
McLean7432	6/04/09		1			1	5			7
Piat7824	4/16/09		14				1			15
Piat7824	5/04/09	3	17							20
Sang9888	4/08/09		1				3			4
Sang9888	6/05/09		4				4		1	9

Stark0960	4/17/09		9				2			11
Stark0960	5/11/09		9							9
Union2515	4/18/09		4							4
Union2515	5/11/09		4						5	9
Whit0157	4/03/09		3			4	2			9
Whit0157	5/17/09		5			2	1			8
Wood2828	4/08/09		5			1				6
Wood2828	5/10/09		15			1				16
Wood2828	5/31/09		1							1
Wood6263	4/11/09		1				1			2
Wood6263	5/16/09		2				1			3
Wood6263	6/05/09		1				1			2
Totals		31	192	19	26	42	59	2	135	506

Table 2: 2009 species detected by month

Species	**Month**				**Totals**
	April	May	June	July	
AMWO	15	16			31
BDOW	63	95	28	6	192
CONI	2	4	9	4	19
CWWI	0	13	13	0	26
EASO	13	17	10	2	42
GHOW	33	10	15	1	59
NSWO	1	1	0	0	2
WPWI	0	54	64	17	135
Totals	127	210	139	30	506

Table 3: "Other species" detected by month in 2009

Species	Month				Totals
	April	May	June	July	
AMGO				1	1
AMRO	5	5			10
BCNH		1			1
BLJA		2			2
BRTH	1				1
CAGO	28	17	6		51
CHSP		1			1
DICK		3		1	4
EAME	2	1			3
EATO		1			1
EAWP			5		5
FISP		12	5	2	19
GBHE	2	2	3	2	9
GRCA		2			2
GRHE		1			1
GRSP	1	8	5	3	17
HESP	5	12	6	3	26
HOLA		5			5
INBU		2			2
KILL	9	14	7		30
KIRA		1			1
LASP		1	1		2
MALL	3	1	2		6
MODO	2				2
NOCA	2	4	2	2	10
NOMO	1	1	5	1	8
NRWS		1			1
PIWA		1			1
RBGU			1		1
RNEP	1				1
RNPH	2	6			8
RWBL		1			1
SCOW			1		1
SEWR		2			2
SORA	1				1
SOSP	1	3		1	5
VESP		2			2
WITU	2			1	3
WODU	1				1
YBCH		9	8		17
YBCU		4	9		13
Totals	69	126	66	17	278

Table 4: Yearly comparisons by month and total number of species detected to date

Species	**Month**								**Totals**
	April		May		June		July		
	2008*	2009	2008	2009	2008	2009	2008	2009*	
AMWO	-	15	0	16	1	0	2	0	34
BDOW	-	63	59	95	46	28	40	6	337
CONI	-	2	4	4	5	9	9	4	37
CWWI	-	0	0	13	0	13	0	0	26
EASO	-	13	6	17	2	10	5	2	55
GHOW	-	33	17	10	10	15	8	1	94
NSWO	-	1	0	1	0	0	0	0	2
WPWI	-	0	40	54	39	64	5	17	219
Totals	-	127	126	210	103	139	69	30	804

* 2008 did not have an April monitoring season and in 2009 Jo Daviess County volunteers monitored in July.

Figure 1: This figure is depicting 2009 counties that had a monitored MOON route. The yellow circles indicate Whip-poor-will detections.

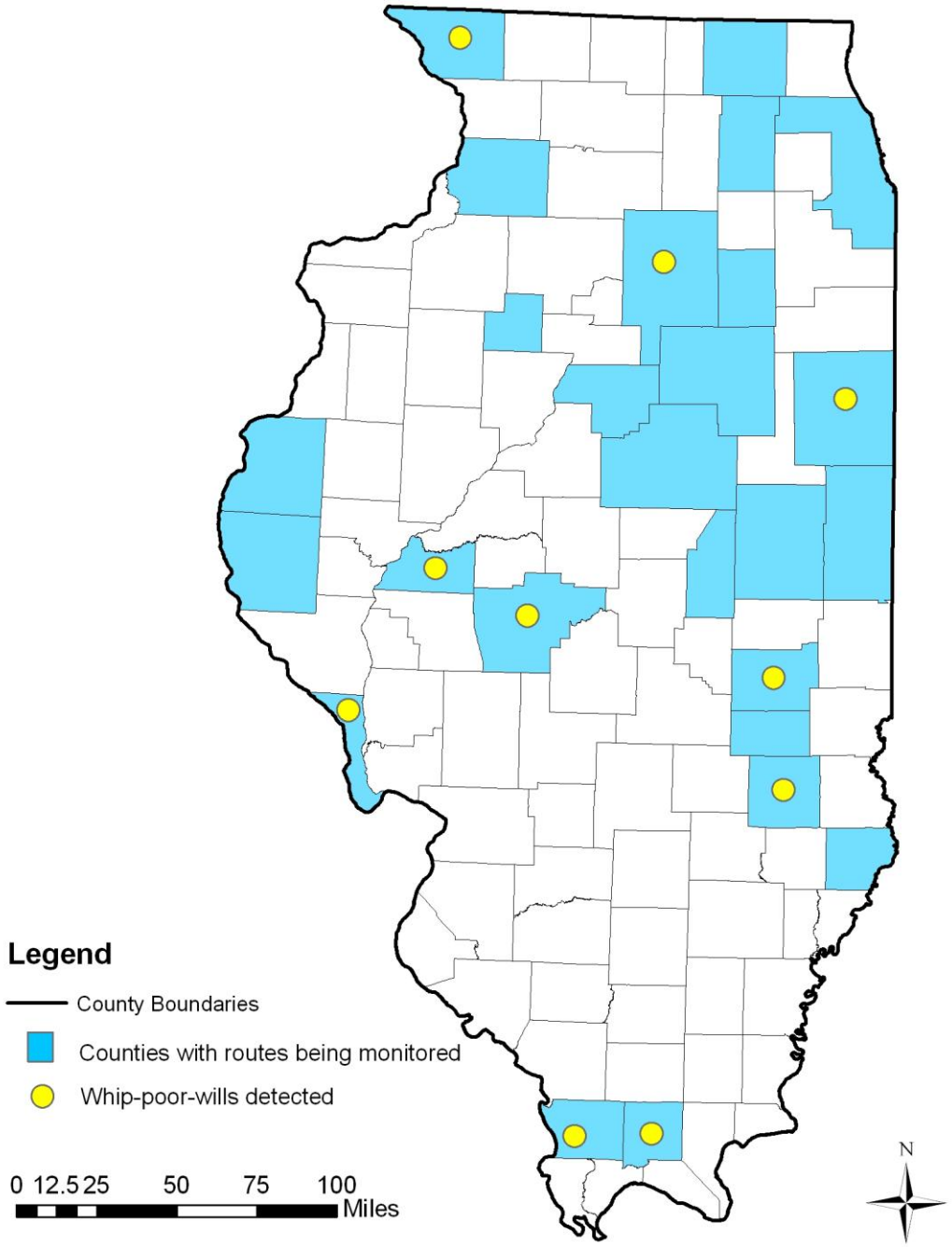


Figure 2: This figure is comparing the detection probabilities of three different species based on monitoring period (based on 2009 data).

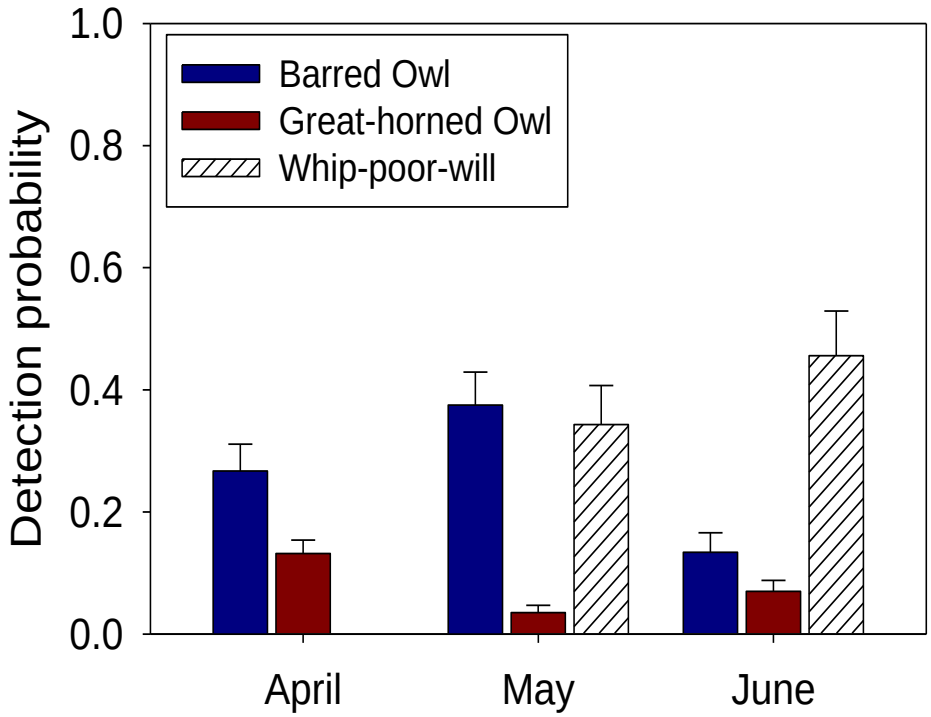
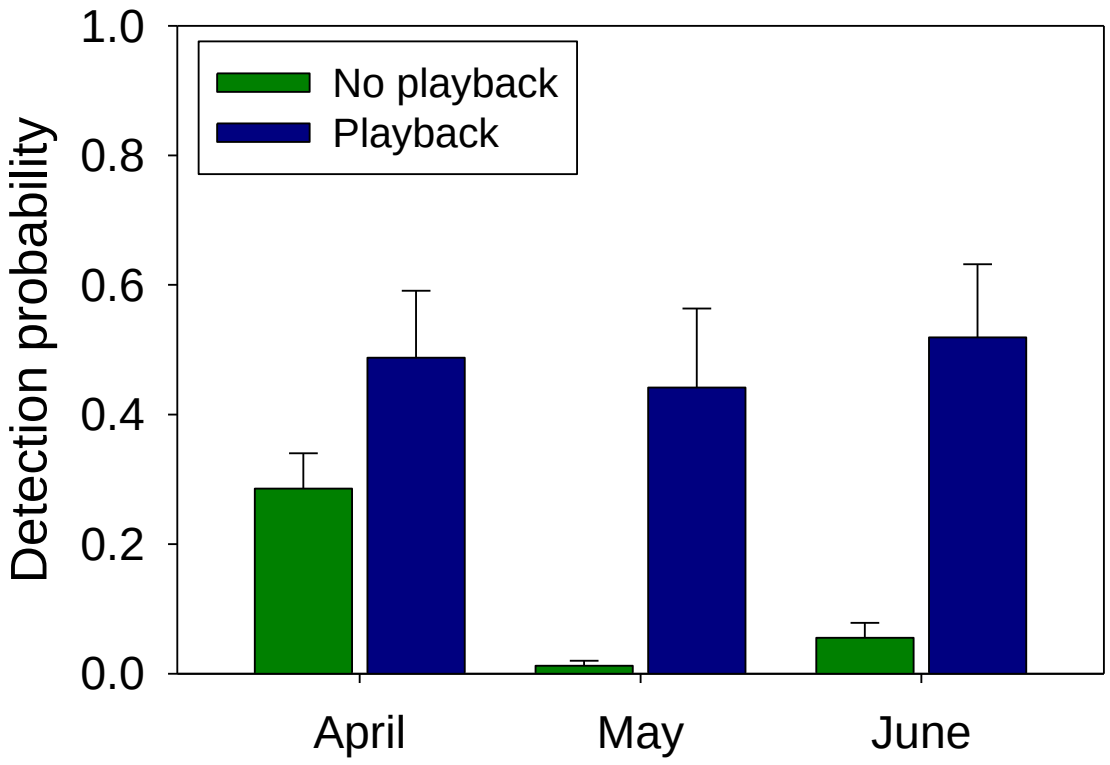


Figure 3: This figure is looking at the probability of detecting an Eastern Screech-Owl without the use of a playback and with the use of playback (based on 2009 data).



Appendix A

MOON 2009 Monitoring Instructions

Based on previous research we know that there are certain criteria that are important when monitoring for owls and nightjars. The following are a list of these criteria:

1) Each survey should be conducted at least 30 minutes following sunset (when the moon is above the horizon) and end no later than 15 minutes prior to sunrise.
2) Surveys should only be completed during times when the moon is 50% or greater illumination. 2009 optimal monitoring dates are April 3-17, May 2-17, and May 31-June 15 (this year this first period is optional, however, if time is allotted, volunteers are encouraged to monitor). Monitoring should only be performed when the moon is above the horizon and not obstructed by clouds. Nightjars call less frequently when the moon is below the horizon or hidden by cloud cover.

***Route Selection:**

Each route should consist of 10 stopping points where you stop, get out of your vehicle, and listen for nightjars and owls for a period of **6** minutes. Following the **6** minute listening period an Eastern Screech-Owl playback (**See playback instructions) will be used and an additional **2** minute listening period will be completed. If you do not have a call player than you only need to listen for 6 minutes before moving to the next stop. Each stopping point should be at least one mile apart. The starting point of your route will be named stop #1 and so on until you get to stop #10. At this time you will have driven a nine mile route. Note: If needed, it is better to add space rather than shortening space between stops to avoid double counting. Also, given the topography of the state and the layout of many roads we realize that some will have to turn down different roads to complete their routes. **Scouting your route is always a good idea**. This year we have added an additional **46 randomly selected routes** within forested habitats. Location data for these routes will be provided if selected.

*** Other Species:** We are encouraging volunteers to record any species they hear calling while monitoring. If you are not sure of the call than do not record anything, but, for instance, if you know the call is a Sedge Wren or a Henslow's Sparrow, please record the species in the same format that you would the owls or nightjars.

*The following items can be found either by following the appropriate data form link or can be mailed to you upon request:

1. Owl and Nightjar data collection sheet
2. Owl and Nightjar route description sheet (not necessary to fill out if you are completing the same route and have already filled on out before)
3. Playback instructions and Playback test on the back of the stops description sheet
4. CD
5. Placard (this is to place in your car window)

***When completing the data forms:** (Many of these criteria are in conjunction with the Northeast Nightjar Survey Network, current research from the Center for Conservation Biology at the college of William and Mary, Wisconsin Bird Conservation Initiative, and Bird Studies of Canada)

1)**Route name and number**- All pre-existing routes are named and numbered from the previous year. New randomly chosen routes are now available. We currently have 45 new routes to cover within the state (e.g., Champaign7824).
2) **Observer-** Record your name here
3) **Date** – This is the date you are surveying
4) **Time Start** – The time you begin listening at your first stop (Stop #1)
5) **Time End** – The time you stop listening at Stop #10

Instructions continue on back side

Wind: Do not conduct surveys during strong winds. High winds diminish your ability to hear Nightjars or Owls.

Code	Wind Speed	Description
0	Calm (<1 mph)	smoke rises vertically
1	Light (1-7 mph)	smoke drifts, weather vane inactive, leaves rustle, light air movement
2	Moderate (8-18 mph)	leaves, twigs, and thin branches move around, small flags extend, raises loose papers.
3	Strong (19 mph or greater)	small trees begin to sway. **Should not conduct survey.**

Sky Condition: Do not begin a survey if the sky is completely overcast, during heavy fog, or persistent rain. All of these conditions will diminish calling rates of Nightjars and hamper your survey.

Code	Sky	Description
0	Clear	Cloudless sky, can stars and moon clearly
1	Mostly Clear	Few clouds, less than 25% cloud cover
2	Mostly Cloudy	Many clouds, 25-50% cloud cover
3	Overcast	Dense cloud cover, entire sky covered. **Should not conduct survey.**

Background Noise: Codes indicate the level of background noise that impairs your ability to hear Nightjars.

Code		Description
0	None	There is no effect of background noise on your ability to hear nightjars
1	Slight	Noise slightly affects your ability to hear nightjars (e.g. distant traffic, 1-2 car passing during a stop's counting period).
2	Medium	Noise moderately affects your ability to hear nightjars (e.g. nearby traffic, 3-6 cars passing during survey period, airplane flying overhead).
3	Excessive	Noise seriously affects your ability to hear nightjars (e.g. continuous traffic nearby, construction noise, frog chorus)

Mile: Enter odometer/tripometer to nearest tenth mile at each stop. Begin with a value of 0 for first stop.

Counting Owls and Nightjars:

Only count owls or nightjars seen or heard within the **6 minute,** or **8 minute (if using playback),** period you are monitoring for. If you are not using a playback you do not need to listen for 8 minutes only 6. Monitoring should be done from a stationary position outside of your automobile. Most importantly, be consistent. Use the same technique at each stop including how you focus your listening for nearby birds and distant birds.

The counting period is broken into **8 1-minute listening periods on the data sheet (you will use only 6 of these if you are not using a player)**. Record the detection history of each individual seen or heard from the time of their first detection through their last detection in the appropriate 1-minute block of the data sheet (each individual will have their own line on the data sheet). Use a value of 1 for a detection and if there is not detection the minute column can be left blank. This technique will allow us to compare your data to studies that use different time periods. Birds will sometimes

move during the counting period. Use your best judgment in distinguish new detections from those of birds that have moved during the count.

Because we want to be consistent with our data collecting, playbacks should not be played until the 6 minute period is over. Also, **DO NOT** use alternate mechanisms to look for birds, such as flashlights. These practices will bias your survey and make it difficult to compare your data to the data of others. Record birds as you hear them, rather than waiting for the end of the six minute period to avoid data omission errors.

Enter a Stop# in the appropriate column of your data sheet beginning with #1 for your first stop and sequentially numbering others as 2 through 10.

Please use species alpha codes when recording data:

WPWI = Whip-poor-will	BDOW = Barred Owl	BNOW = Barn Owl
CWWI =Chuck-will's-widow	GHOW = Great Horned Owl	*AMWO = American Woodcock
CONI = Common Nighthawk	EASO = Eastern Screech-Owl	**other species

*If you detect this species please record it as you would an owl or a nightjar.
**If you detect another species that is not a target species and you can correctly identify it please record it.

--If none of these species are detected at a stop enter **NONE** in the species column on the data sheet on the same line as that stop number.
--Try your best to maintain a detection history of each individual over all six minutes

Sample Data Entry for an observer at 4 stops: <u>Each line represents an individual bird's</u> detection history and a value of 1 indicates that an individual bird was heard during that respective minute. Use a new line for each new bird detected at a stop.

		Time blocks (minutes of survey)							
Stop#	**Species**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	EASO							1	1
1	CWWI			1	1	1	1		
1	CWWI;	1	1	1				1	
2	NONE								
3	WHIP	1	1	1					1
3	WHIP		1	1	1	1	1		1
4	EASO							1	
4	CONI				1		1		

Playback Instructions

After much consternation we have decided to add an Eastern Screech-owl playback to the monitoring protocol. Last year's data yielded very low numbers of screech owls, and in areas where we know they are common this posed a problem in terms of detectability. Research has shown that Eastern Screech-owls respond very well to playback or any whistle eliciting even the slightest likeness to their own call. Also, after having consulted with researchers working on monitoring projects involving owls and researchers that study owls I have decided that we will not use playbacks for Barred or Great-horned Owls.

You will see that the CDs found in your packets have 7 tracks on them. I included all of the owls or nightjars you may detect for those that may want a refresher on what an individual species call/song sounds like. Track 5 is the Eastern Screech-Owl track that will be played while monitoring. There is around a minute long call period on the CD. At the end of the 6 minute period this call should be played followed by a 2 minute listening period.

To do this you will need a CD player or MP3 player with speakers. If you do not have a CD player or an MP3 player than check "no" on the Used Playback section of the Owl and Nightjar Survey Data Sheet. Since players vary in their volume it is important to test your player to see its boundaries without distortion.

*****TO TEST YOUR PLAYERS:**

It is important for us to know the range of your player, to give us an estimate of variability of the broadcast volume produced by different players. Make sure to perform this test when there is little or no wind, low or no background noise, and no precipitation. Players should be played at the loudest volume without distortion. Note: This is the volume that should always be used for the playback as well. Eastern Screech-Owl playback calls should be played at 1/10 of a mile, 2/10 of a mile, and 3/10 of a mile. This will probably be easiest with your car and perhaps someone to help you that can stay with the player. One person stays with the player to make sure that the player is functioning.

****PLEASE FILL IN THE INFORMATION BELOW AND RETURN WITH DATA FORMS**

Route Name:_____

Date:_____

Observer Name:_____

TEST:

Type of player: _____

Brand/Model of Player:_____

Power/Wattage (if known):_____

Audible at (please check all that apply): ____1/10 mile ____2/10 mile ____3/10 mile

Owl and Nightjar Survey Data Sheet

CONTINUED ON BACK OF FORM

Observer Name:	**County:**	**Moon above horizon: ____ Yes ____ No**
Date:	**Route Name & Number:**	
Street Address:		**City, State, Zip Code:**
Start time:	**End time:**	**Observer email:**

Survey conditions at each stop: (fill below)	**Estimated Temp:**	**Wind Codes**	**Sky Codes**	**Noise Codes**
		0 = none	0 = clear	0 = none
		1 = slight	1 = mostly clear	1 = slight
		2 = moderate	2 = mostly cloudy	2 = medium
		3 = strong	3 = overcast	3 = excessive
		Used Playback _____Yes _____ No		

Stop#:	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Wind										
Sky										
Noise										
Mile	**0.0**									

		Time Blocks (Minutes of Survey)							
Stop #	**Species**	**Minute 1**	**Minute 2**	**Minute 3**	**Minute 4**	**Minute 5**	**Minute 6**	**Minute 7**	**Minute 8**

Mail this form to: **Tara Beveroth, Illinois Natural History Survey, 1816 S. Oak St., Champaign, IL 61820**

		Time Blocks (Minutes of Survey)							
Stop #	**Species**	**Minute 1**	**Minute 2**	**Minute 3**	**Minute 4**	**Minute 5**	**Minute 6**	**Minute 7**	**Minute 8**

<u>Mail this form to:</u> Tara Beveroth, Illinois Natural History Survey, 1816 S. Oak St., Champaign, IL 61820									

Owl and Nightjar Stops Description Data

Use this form if you are creating your own route, if you are using a pre-existing route this form will not be necessary.

Observer Name	
State	
County	
Route Name and Number	
Year of Survey	

Stop#	**Latitude** e.g., dec degrees 38.43567 or deg, min, sec 38º 56´ 07´´	**Longitude** e.g., dec degrees 71.45465 or deg, min, sec 71º 25´39´´	or Location Description (please include road, or street numbers, and intersections if applicable)	# Houses Visible	Dominant 3 habitats (use codes below)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Habitat Codes:

PF = Pine/Conifer/Mixed Forest
HF = Hardwood Forest
D = Developed (urban, residential area)
O = Open (grassland, fields, lawn, clear-cut)
W = Water
M = Marsh/Wetland